Work Orde July-23-13 12:5	_ 4	940		*104	1940*					. <u></u>		Page
Revision ID:	D2244-116 STEP EXTRUS	ION		Accept	*N900	040	100	*	Setup	Start Stop	*N *N	S1* S2*
Start Date: Required Date: Reference:		Start Qty: 60.00 Req'd Qty: 60.00	*60* *60*	90	Cust Item I Customer:	D:				Q		l
Approvals:	Process Plan	: MUZ	Date: 13-07-75	Tooling:	Da	ate:			Run	Start	*N	R1*
	QC:		Date:	SPC (Y/N):	Da	ate:				Stop	*N	R2*
Sequence ID/ Work Center II		Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Rej Qty		Reject Number	Insp. Stamp
: Draw Nbr	Revis	ion Nor		· · · · · · · · · · · · · · · · · · ·							-	
D2244	Rev D	01										
*100 *100* Purchasing Purchasing		b) Material: c) Minimum d) Minimum e) Minimum f) Order at 11 g) Caradon II h) Material co	per Dwg D2244 6061-T6 (QQ-A-200/8) yield tensile strength = 35 ultimate tensile strength = clongation = 8% 6" long idalex Tool # MH-18865 en's is required IE CARE MUST BE TAKE F THE TUBE. THE OUTS FROM SURFACE DEFEC	38 ksi EN TO PROTECT THE BIDE SURFACE MUST	BE SMOOTH					pl L	3-07	-25'

MUST BE WELL PACKAGE, IF NOT IT WILL BE REFUSE

												• •	*
										DQA:	Date: _	•	• .
NCR: Y	es / No			WORK	ORDER NON-C	O1	NFORM	MANCE / UP	PDATE	QA Closed:	Date:		,
Work Orde	ır:			D	ISPOSITION				AGAINST DE	PARTMENT	/PROCESS		
Part N					Rework Scrap		ı	Skid-tube Machining	Crosstube Small Fab	4	Water Jet	Engineerin Qualit	yΓ
NCR N	lo	·		Work	Use-as-is Order Update]		noforming Large Fab	Finishing Composite	Rec/Sto	re/Packaging Supplier	Othe	E
Root				Description of wo	rk order update	1	nitial	Ad	ction	Sign &			
Cause	Date	Step	Qty	or Non-conf	ormance	Ch	ief Eng	Desc	cription	Date	Verification	QC inspe	cto
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Landin	ng Gear				eneral	_	ı			7			
1	Bending			Bend			Grain		ļ	Ovalized		Pressure/Forc	.ed

Mislabeled Positioned Wrong Countersink Heat Treat Other Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge Ripples in Bend Drill Holes Offset Drawing Out of Calibration Torque Waves in Extrusion Finish Out of Sequence Turning Sequence Folio Outside Dimensions Wave/Twist in Tube

Hardware

Maintenance

Inspection Incomplete

instructions incomplete/Unclear

Over/Under tolerance

Part Incorrect

Part Moved

Part Lost/Missing

Temperature/Cure

Wrong Stock Pulled

Weld

BOM/Route

Contamination

Burrs

Broken/Damaged

Cracks

Cuffs

Crushed/Crimped

Centre Not Concentric to O/S

Work Order ID 104940 July-23-13 12:57:17 PM			*104940*							F		
Item ID: Revision ID: Item Name:	D2244-116 STEP EXTRU	JSION		Accept	 -	*N900	<u>040</u>	100) * s	Setup Star Stop	I VI	S1*
Start Date: Required Date: Reference:	7/23/13 : 7/23/13	Start Qty: 60.00 Req'd Qty: 60.00	*60* *60*			Cust Item I Customer:	D:					· '/
Approvals:	Process Pla		Date:				ate:		F	tun . Star Sto _l	17	R1*
Sequence ID/ Work Center I		Operation Description		Set Up/ Run Hou	rs	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
*110 *110* Packaging Packaging		Receive & Inspect for Da Memo Ensure certif	image & Mari Corts	0.00					20	. <u></u>		38-26
120 *120* QC		QC6- Inspect dimensions Memo		0.00	DAS 16 9-89	3/06/27			40)	· <u>-</u>	:
Quality Control 130 *130*		with Webste	est per Dwg D2244 for constructor ock Location: LWA		ehed, Cl	heck hardness			90	S.		ii M
Packaging Packaging		Memo	', • ~ (1)(0.00					<u>, </u>			13.08.20

f x

Equip/Tooling Operator Material Operator Operator Operator Material Operator Operato											DQA:	Date	
DISPOSITION Rework Scrap Use-as-is Work Order Update Use-as-is U	NCR: Y	es / No				WORK ORDER NON-C	100	NFORM	MANCE / UPDATE			_	•
Rework Skid-tube Crosstube Machining Small Fab Prod. Eng. Coor. Quality Engineering Skid-tube Crosstube Machining Small Fab Prod. Eng. Coor. Quality Rec/Store/Packaging Other Supplier Composite Step Qty Description of work order update Chief Eng Description Description Description Date Verification QC Inspector Decroary Dec											QA Closed:	Date	
Rework Scrap Water Jet Engineering Machining Small Fab Prod. Eng. Coor. Quality Rec/Store/Packaging Other Supplier Composite Step Qty Or Non-conformance Chief Eng Description Description Description Description QC Inspector Doc/Data Equip/Tooling Operator Chief Eng Description Description Data Verification QC Inspector Operator Chief Eng Description Description Data Verification QC Inspector Description Description Description Description Data Verification Operator Description Description Description Data Verification Operator Description Description Description Data Verification Operator Description Description Data Verification Operator Description Description Data Descr	Work Orde	or.				DISPOSITION		ļ	AGAI	NST DE	PARTMENT,	/PROCESS	
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NCR No.	Part N	No.				· —	1		├── -{	· ·	Pro		
Root Cause Date Step Qty Or Non-conformance Chief Eng Description Date Verification QC Inspector Doc/Data Equip/Tooling Operator Material Setup Unapproved Unapproved Docher Date Step Step Step Step Step Step Step St						i —	1		~ Ш	· ·	4	· · · · ·	⊣ '⊢⊸'
Cause Date Step Qty or Non-conformance Chief Eng Description Date Verification QC Inspector Doc/Data	NCR N	No.				Work Order Update	1	1	· -	site		- · -	
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Landing Gear General Grain Ovalized Pressure/Forced Bending Bend Grain Ovalized Pressure/Forced Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/Cure Cracks Broken/Damaged Inspection Incomplete Part Incorrect Weld Crushed/Crimped Burrs Instructions Incomplete/Unclear Part Lost/Missing Wrong Stock Pulled Cuffs Contamination Maintenance Part Moved	_	H									!		
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Bending Bend Grain Ovalized Pressure/Forced Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/Cure Cracks Broken/Damaged Inspection Incomplete Part Incorrect Weld Crushed/Crimped Burrs Instructions Incomplete/Unclear Part Lost/Missing Wrong Stock Pulled Cuffs Contamination Maintenance Part Moved	1 a a al i	C			·		AUL	LI CATE	JURT				
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		\vdash	a) Crimped		<u> </u>	- }	\vdash	4	•	-	1	331118	Tarione Stock runed
I HEAT TRAIT I TOUDTERSIDE I SUDITERSIDE I SUNISIADEIRO I POSITIONEO WRODE		Heat Tr	eat		<u> </u>	Countersink	-	Mislabe			Positioned V	Vrone	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Ord July-23-13 12:		04940	*104940*									Page 3	3
Item ID: Revision ID: Item Name:	D2244-116		· · · · · · · · · · · · · · · · · · ·	Accept	*N900	<u>040</u>	100)*	Setup	Start Stop		S1* S2*	
Start Date: Required Date Reference:	7/23/13 : 7/23/13	Start Qty: 60.00 Req'd Qty: 60.00	*60* *60*		Cust Item II Customer:	D:							
Approvals:		lan:	Date:	Tooling: SPC (Y/N):	Da	te:			Run	Start Stop	*N *N	R1* R2*	
Sequence ID/ Work Center I 140 *140* QC Quality Control	D	Operation Description QC21- Final Inspection -	Work Order Release	Set Up/ Run Hours 0.00	Tool ID	Tool #	Plan Code	Accept Qty	Re Qt	•	Reject Number	Insp. Stamp	 -

der of solved

								DQA:	Date:				
NCR: Y	Yes /	No				WORK ORDER NON-	100	NFOR	MANCE / UPDATE		QA Closed:	Date:	•
						DISPOSITION			AGAINST	DE	PARTMENT		
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	Be	nding				Bend		Grain		L	Ovalized	L	Pressure/Forced
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1	∐ Cr	acks				Broken/Damaged		1	ion Incomplete	<u>_</u>	Part Incorred		Weld
}	Crushed/Crimped Burrs				Burrs	Instructions Incomplete/Unclear			\vdash	Part Lost/Mi	ssing	Wrong Stock Pulled	
Cuffs Contamination						Contamination	Maintenance			Part Moved			
] He	at Trea	it			Countersink		Mislabe	eled	1	Positioned V	/rong	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Cut Too Short

Drill Holes

Drawing

Finish

Folio

Other

Power Loss/Surge

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Picklist Print

July-23-13 12:57:16 PM

Work Order ID:

104940

Parent Item:

D2244-116

Parent Item Name:

STEP EXTRUSION

Start Date: 7/23/13

Required Date: 7/23/13

Start Qty: 60.00

Required Qty: 60.00

Comments:

IPP: A 24.03.04 New Issue

K.J

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date S Issued	Status
D2244-116P		Purchased	No			110	Each	0.0000	1 0	ے 60	`~ ~	^ -	_
Step Extrusion									Z	5 <i>j</i>	Y_/3.	-82	

Page 1

												DQA:	D.	ate:	
NCR:	⁄es	/ No				WORK ORDER NON-C	100	NFORM	AANCE / UP	PDATE		·			•
											_'	QA Closed:	D.	ate:	
Work Orde	~ <u>~</u> .					DISPOSITION				AGAINST DI	ΕP	PARTMENT	PROCESS		
WORK OT GE	er. -					Rework	1		Skid-tube	Crosstube	7		Water Je	t	Engineering
Part N	۷a.					Scrap			Machining	Small Fab	1	Pro	d. Eng. Coor	-	Quality
	-					Use-as-is	1		noforming	Finishing	1		e/Packaging		Other
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Cause	ightharpoonup	Date	Step	Qty	(or Non-conformance	Ch	ief Eng	Desc	cription	4	Date	Verification	on	QC Inspector
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,	\vdash	Bending				Bend		Grain		-	-	Ovalized		\vdash	Pressure/Forced
	-	Centre No	ot Concer	ntric to	o/s _	BOM/Route	<u> </u>	Hardwa		-	-	Over/Under		\vdash	Temperature/Cure
	\mathbf{H}	Cracks				Broken/Damaged	Inspection Incomplete				-	Part Incorred		\vdash	Weld
	-	Crushed/	Crimped		<u> </u>	Burrs	Instructions Incomplete/Unclear			-1	Part Lost/Mi	ssing	L	Wrong Stock Pulled	
	Щ	Cuffs			<u> </u>	Contamination	Maintenance			Part Moved					
	Ш	Heat Treat Countersink					\vdash			Positioned Wrong		1 .			
	1	Inspection	n Strip in	Tube		Cut Too Short	1	Misread	1		- 1	Power Loss/	Surge	1	Other

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Drill Holes

Drawing

Finish Folio

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-	DESIGN	V	DRAWN BY	DART AEROSPACE HAWKESBURY, ONTARIO, CAI		
	CHECK	E	APPROVED	DRAWING NO. D2244	SHEET	REV. D 1 OF 1
	DATE		//	TITLE		SCALE
	98.1	1.18		STEP EXTRUSION		1;1
	Α		94.07.05	NEW ISSUE		
	В		94.07.11	REDESIGNED		
	С		94.08.08	REDESIGNED		
	D		98.11.18	REMOVED 6005A MATERIAL INCORPORATED DEO 9081		
		ļ				

RELEASED

A CP 01 04 17 ADDED DIE # DI 3.40 R0.02 (TYP) - 0.20 R_{0.15} 0.20 0.05 (TYP) 0.125 R0.20 0.100 (TYP) 2.025 (TYP) R0.30 1.00 R0.32 MANUFACTURED USING CARADON INDALEX DIE # MH-18865 PART NUMBER D2244-XX.X XX.X IS CUT LENGTH IN INCHES MATERIAL: 6061-T6 (QQ-A-200/8)

A SAMPLE FROM EACH BATCH WILL BE PULL TESTED TO ASIM STANDARD B221 BY AN APPROVED TESTING FACILITY TO ENSURE THAT THE BATCH MEETS THE MINIMUM MECHANICAL PROPERTIES STATED BELOW:

MINIMUM TENSILE YIELD STRENGTH = 35 ksi MINIMUM ULTIMATE TENSILE STRENGTH = 38 ksi MINIMUM ELONGATION = 8%

TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

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ALUMITUM EXTRUCTOR - AMUDIENTO - LAUNICATION - FAMINAD Pointe-Claire, Quebec H9K 5VV3 Téléphone: (514) 697-5120 Télécopieur: (514) 694-8310 VENDU À / SOLD TO EXPEDIÉ / SHIP TO INDICATIONS SPÉCIALES SPECIAL INSTRUCTIONS NOTRE NUMÉRO DE COMM. OUR ORDER NO. DART AEROSPACE LTD DART AEROSPACE LTD 1270 ABERDEEN STREET 071965 HAWKESBURY, ONT M6A1K7 K5A1K7 CUSTOMER P.S.T.: <u>SAPA F.S.T.'RÉF NO É</u> E857314058 PROJE TAXE DE VENTE PROV. Nº DE COMM. DU CLIENT NOTRE DATE DE COMM. DATE DE COMMANDE CONDITIONS G.S.T. PROV. SALES TAX CUST, ORDER NO. Required Dates CUST, NO. ORDER DATE OUR ORDER DATE TERMS Pb20<u>713</u> 201355 XXXXXX 113707729 **はノロブノク**の VENDEUR SALÉSMAN PAYÉ PPD, C.O.D. F.O.B. DATE DE LIVRAISON DATE SHIPPED PERC EN BALLOTS CARTONNE CARTONNÉ & INTERCALÉ ENVOYÉ PAR SHIPPED VIA BUNDLED AND TAPED CARTONED . CARTONED & INTERLEAVED 13/08/22 OTTAWA 23 AOUT Nº ITEM ITEM NO. Nº DE MATRICE SAPA DIE NO... COMMANDE / ORDERED COMMANDE / ORDERED CETTE EXPÉDITION / THIS SHIPMENT CRIPTION OU CLIENT ALLIAGE ET TREMPAGE LONGEUR PRIX UNITAIRE MONTANT POIDS WEIGHT COSTOMER DESCRIPTION ALLOY AND TEMPER UNIT PRICE POIDS WEIGHT BALLOTS BOLES. **AMOUNT** PCES / PCS F EXTRUDE ONLY DÜE≕2013/08/23 MH 18865 DS2244-116P 522 toz ebrosi EN KGS SHEP EXTRUSION INDI A= 1089015 / 1089016 / 1089017 / certify that the material supplied meets the properties as published by the Aluminum reducements of our Quality procedures 11 FORM 118XF REV 10/12 LES MARCHANDISES CI-DESSUS ONT ÉTÉ REQUES EN BONNE ET DUE FORME THE ABOVE GOODS WERE RECEIVED IN GOOD ORDER FRUIT LE DE LA FINGALIAN PRENTER : H L

PAR / BY

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Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON K6A 1K7

Tel: 613 632 9577 Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO20713

Purchase Order Date 7/29/13 PO Print Date 7/29/13

Page Number 1 of 1

Order From :

VC-SAP001

DART AEROSPACE LTD Ship To:

1270 ABERDEEN

HAWKESBURY, ON K6A 1K7

CANADA

SAPA CANADA INC

C/O 912420

P.O. BOX 4090 STN A

TORONTO, ONTARIO M5W OE9

CANADA

Contact Name

Vendor Phone

800 563 5120

Ship To Contact

Ship To Phone

Reference

Line Comments

Delivery Comments

Ship Via:

Yours ppd

EXTRUDE AS PER DWG D2244 REV. D1 B104940 Mat: 6061-T6(QQ-A-200/8) Min. yield tensile strength=35ski/Min. ultimate tensile strength= 38ski/Min. elongation=8%Extreme care must be taken to protect the outside surface of the tube

Buver

Brigitte Golden

Customer POID

Customer Tax #

10127-2607

Terms

Net 30 CAD

Currency

FOB

Destination-Collect

Ship Acct:

Line

Vendor Part Number

Description/ Mfg ID

Reg Date/ Taxable

Promise Date

Req Qty/

Unit of Measure

90.00

PO Unit Price

\$34.39

\$3,095.40

Extended

Price

D2244-116P

Step Extrusion

8/01/13

8/01/13

693826.

Line Total:

\$3,095.4

PO Total:

\$3,095.4

Note: Pricing listed above is as per contract agreement between Dart Acrospace and the respective manufacturer.

No substitution or deviation without consent. Certificate of Conformity or Material Certification required - YES

PST# 6122-5207

2

Change Nbr:

Change Date:

7/29/13

NO

• • •			

325 rue Avro Pointe-Claire, QC, Canada, H9R 5W3 Téléphone (514) 697-5120

Fac-simile (514) 694-8310



Rapport des propriétés mécaniques **Mechanical Properties Test Report**

Client / Customer :

DART AEROSPACE LTD

Adresse / Address :

270 ABERDEEN STREET HAWKESBURY ONT,

K6A 1K7

commande Sapa / Sapa order #:

3071965

bon de commande / Purchase order #:

P020713

de matrice / Die #: MH 18865

Description: Step Extrusion

Alliage & trempage / Alloy & temper

Customer Part #: DS2244-116P

Contrôle / Control #: 99059-1

Coulée / Cast #: 57531

	Min.requis Min.required	Résultat actuel Actual results		
Tension ultime Ultimate stress (psi)	38 000	41 890		
Contrainte élastique Yield stress (psi)	35 000	35 292		
% élongation dans 2" % elongation in 2"	8	11		
Dureté Rockwell E (hre) Rockwell E Hardness (hre)	88 @ 100	89		

Composition chimique typique / Typical chemical composition:

	Si	Fe	Cu	Mn	Mg	Č	Zn	Ti
6063	0,20 - 0,60	0,35 Max	0,10 Max	0,10 Max	0,45 - 0,90	0,10 Max	0,10 Max	0,10 Max
6005	0,60 - 0,90	0,35 Max	0,10 Max	0,10 Max	0,40 - 0,60	0,10 Max	0,10 Max	0,10 Max
6005A	0,68 - 0,72	0,15 - 0,27	0,08 - 0,12	0,20 - 0,24	0,48 - 0,52	0,03 Max	0,05 Max	0,03 Max
6061	0,40 - 0,80	0,70 Max	0,15 - 0,40	0,15 Max	0,80 - 1,20	0,04 - 0,35	0,25 Max	0,15 Max_
6351	0,7 - 1,3	0,5 Max	0,10 Max	0,40 - 0,80	0,40 - 0,80		0,20 Max	0,20 Max

Nous certifions que le matériel fourni rencontre les exigences chimiques telles qu'annoncées par la norme ASTM B-221-08 excepté pour la section 8.2 (nombre de spécimen) .

We hereby certify that the material supplied meets the chemical properties as published by the ASTM B-221-08 except for section 8.2 (number of specimen).

Sincèrement vôtre,

date: 2013-08-12

Yours truly,

Gilles Pelletier

-- Technicien de la qualité

Quality technician

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